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DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL
SAMPLING KIT, CBR AGENT M34

Headquarters, Department of the Army, Washington, D. C.
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SECTION I

INTRODUCTION

1. Scope

This manual describes the Sampling Kit, CBR Agent M34 and provides information for its use.

2. Record and Report Forms

Report of errors, omissions, and recommendations for improving this manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding Officer, Edgewood Arsenal, ATTN: SMUEA-TSE-TP, Edgewood Arsenal, Md. 21010.

3. Purpose and Use

The M34 CBR agent sampling kit is intended for use by authorized CBR trained personnel to:

a. Sample soil, surfaces, and water for CBR agent.

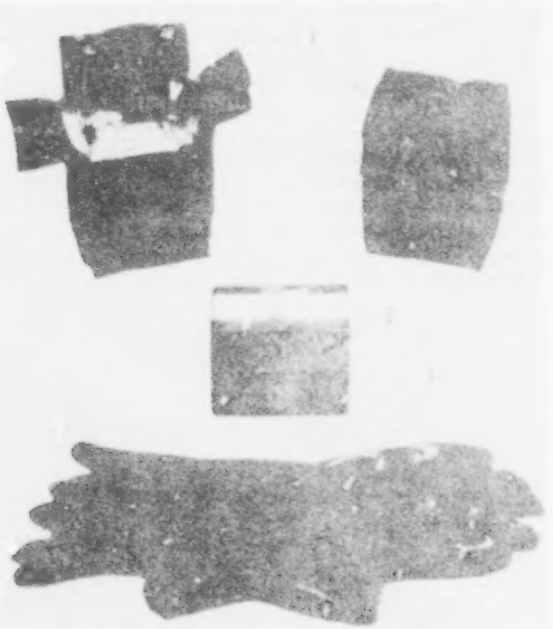
b. Perform preliminary processing of soil samples.

SECTION II

DESCRIPTION AND USE

4. General

The M34 CBR agent sampling kit (fig. 1) consists of two soil sampling kits (1), one vials container (2), and two pairs of gloves (3) packed in a fiberboard box.



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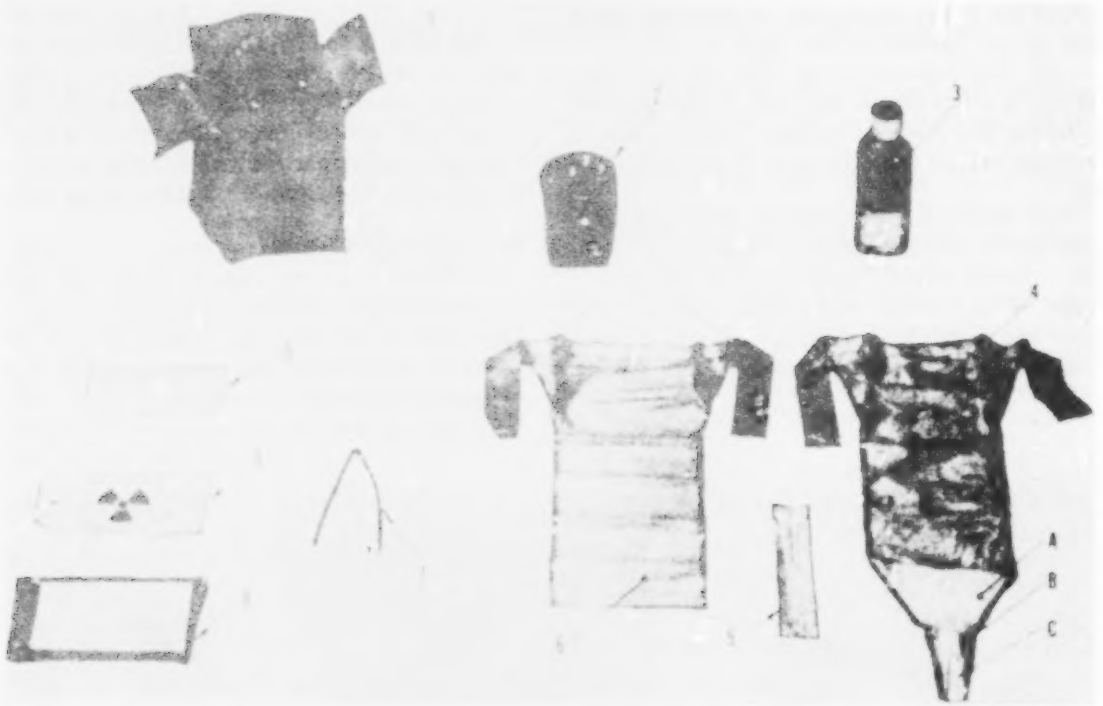
1 Soil sampling kits 2 Vials container
3 Rubber gloves

Figure 1. M34 CBR agent sampling kit

5. Soil Sampling Kit

a. Description. The soil sampling kit is expendable. It consists of a carrier (1), a plastic scoop (2), two extraction fluid bottles (3), two soil extraction bags (4), 16 individually wrapped applicators (5), six soil collection bags (6), 10 plastic-covered wire ties (7), a book of ABC-M8 VGH chemical agent detector paper (8), three radiation hazard tags (9), and eight shipping tags with envelopes (10).



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1 Carrier
2 Scoop
3 Extraction fluid bottle
4 Soil extraction bag
5 Applicator
6 Soil collection bag
7 Tie
8 Detector paper
9 Radiation hazard tag
10 Shipping tag
A Cotton filter
B Paper spacer
C Paper clip

Figure 2. Soil sampling kit.

(1) *Carrier.* The carrier (1) is made of cotton duck material. Nylon pile hook-and-loop tape serves as a fastener. The name SOIL SAMPLING KIT is marked on the closing flap. Two metal keepers (carrying clips) are attached to the back of the carrier. Inside the carrier are two loop straps for holding two extraction fluid bottles (3).

(2) *Soil extraction bag.* The soil extraction bag (4) is a flat plastic bag with a wide opening at the top. A pair of plastic tie straps extend from the sides at the top of the bag. The bottom of the bag tapers to form a collapsible funnel which is equipped with cotton filter (A). A paper clip (C) fits over the bottom of the bag to hold the paper spacer (B) in position and to close off the bottom of the bag.

(3) *Soil collection bag.* The soil collection bag (6) is a flat plastic bag with a wide opening at the top and a sealed bottom. A pair of plastic tie straps extend from the sides at the top of the bag.

(4) *Extraction fluid bottle.* The extraction fluid bottle (3) is a square, clear-glass bottle with a black plastic screwcap. It contains 5 grams of anhydrous magnesium sulfate. The bottle has a frosted marking surface. A strip of black plastic pressure-sensitive tape for resealing the bottle is attached to the side of the bottle.

(5) *ABC-M8 VGH chemical agent detector paper.*

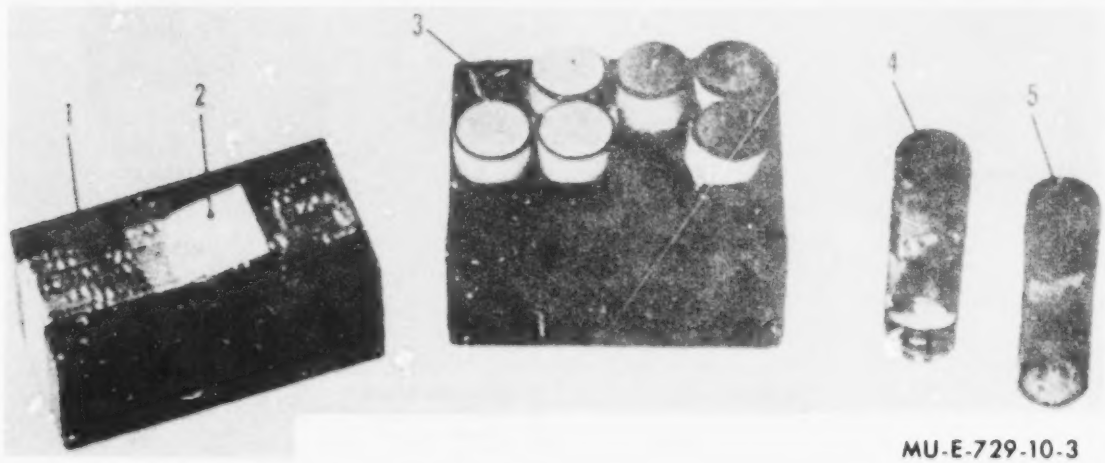
(*a*) *Description.* Twenty-five sheets of ABC-M8 VGH chemical agent detector paper are bound in a book (8). Each sheet is perforated so that it can be torn out of the book for use. Instructions for using the detector paper are printed on the back cover of the book. A color-comparison guide is printed on the inside of the front cover.

(*b*) *Use.* The ABC-M8 VGH chemical agent detector paper is used to detect liquid V, G, or H agent on liquid or on solid surfaces.

b. Use. The components of the soil sampling kit are used in the field to collect soil and water samples, samples from contaminated surfaces, munition fragments, materiel fragments, small objects and dead animals. The carrier is used as a shipping container for transmitting samples to the General Chemical Laboratory (FM 21-40).

6. Vials Container

a. Description. The vials container (3, fig. 3) is a partitioned cardboard box with a cover (1). The cover of the box has a pull tab (2). The vials container holds four vials of sterile liquid (4) and four empty vials (5).



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1 Cover
2 Pull tab
3 Vials container
4 Sterile liquid vial
5 Empty sterile vial

Figure 3. Vials container.

(1) Each sterile liquid vial contains 10 milliliters of liquid (holding solution). Each bottle is sealed with a blue plastic screwcap and pressure-sensitive adhesive tape around the neck and cap of the bottle.

(2) Each empty vial is sealed with a red plastic screwcap and pressure-sensitive adhesive tape around the neck and cap of the bottle.

b. Use.

(1) The holding solution is used with an applicator (5, fig. 2) to collect biological agent samples from solid surfaces.

(2) The empty vials are used to collect water samples suspected of biological agent contamination.

7. Rubber Gloves

a. Description. The rubber gloves (3, fig. 1) are made of black neoprene. The palms and fingers of the gloves are rough textured to provide a sure grip when the gloves are worn.

b. Use. The gloves are supplied for use when screening suspected areas (para 11), sampling (para 12 through 15), and processing soil samples (para 16).

SECTION III
SERVICE UPON RECEIPT OF EQUIPMENT AND INSPECTION

8. Service Upon Receipt of Equipment

a. Check the items of the M34 CBR agent sampling kit for completeness (para 5 through 7).

b. Inspect the items in the M34 CBR agent sampling kit (para 9).

c. Remove the extraction fluid bottles (3, fig. 2) from the soil sampling kits, and fill each bottle to the neck with petroleum ether (FSN 6810-227-1305). Reseal the bottles with pressure-sensitive tape attached to the bottles and return them to the soil sampling kits.

9. Inspection

Inspect the M34 kit upon receipt, just prior to each day's use, and semiannually if the kit is not in use.

a. Soil Sampling Kits. Remove the contents of the soil sampling kits and check them for damage and depletion. Discard damaged components. Check the fluid extraction bottles to make sure that they are filled with petroleum ether and sealed with pressure-sensitive tape.

b. Vials Container. Open the vials container and check the vials to make sure that they are unbroken and properly sealed. Discard broken vials.

c. Rubber Gloves. Inspect the rubber gloves to make sure that they are not cut or torn.

SECTION IV
USING INSTRUCTIONS

10. General

a. Obtain all available information as to the time of incident, location and extent of contamination, weather condition, nature and number of casualties, and any other pertinent data which will serve as a guide in determining where to sample.

b. Remove two vials containing holding solution and two empty vials from the vials container (fig. 3). Place them in the soil sampling kit.

c. Don a field protective mask and rubber gloves supplied with the kit over impregnated cotton gloves before entering any area suspected of being contaminated. If radiological contamination is suspected, wear a dosimeter and carry a radiac survey meter. Do not remove the mask until a test with a chemical agent detector shows that there is no longer a vapor hazard.

11. Screening Suspected Areas

a. If intelligence reports indicate that agent may have been delivered by aircraft or missile spray, screen the area known to have been in the path of the spray before collecting samples. Avoid screening areas that are shielded by obstructions and surfaces that are exposed to direct sunlight and high temperatures.

b. Survey suspected area with a radiac survey meter. If survey meter indicates radioactivity, locate and isolate hot spots, and record time, location, and radiation intensity. Collect samples of radioactive material (para 14).

c. Scan the area for sources of suspected chemical and biological contamination such as:

(1) Oily drops, liquid splashes, gelatinous masses, particles of powder or solids on surfaces, on vegetation, and on the ground.

(2) Oily or fluorescent streaks or dark coloration on water or on hard surfaces.

(3) Wet stains or haze on porous surfaces.

(4) Debris in shell or bomb craters.

(5) Enemy ammunition components, aerosol dissemination equipment, spray guns, flasks, vials, unusual types of bombs or shells (compressed-air type).

(6) Wilted or discolored plants or flowers, and unusual number of dead animals or fish.

d. Screen suspected sources (*c* above) with ABC-M8 VGH chemical agent detector paper for gross chemical agent contamination as described below. If the presence of chemical agent is not confirmed with the detector paper, collect samples from two or three of the suspected sources for chemical and possible biological agent analysis:

(1) Tear out a sheet of ABC-M8 detector paper from the book.

(2) Hold it in contact with suspected source for approximately 10 seconds. (For suspected water, put a drop of water on the paper.)

(3) Compare any color change with colors printed on the inside cover of the book. (Some gasolines, diesel fuels, organic solvents, and cleaning solutions may give false positive tests.)

(*a*) A yellow color indicates G agent.

(*b*) A red color indicates mustard (H).

(*c*) A green color indicates V agent.

(*d*) No apparent color change indicates either no agent or a concentration of agent too low to be detected with the detector paper.

12. Chemical Agent Sampling

Collect all chemical agent samples that may be required. Mark them for identification with date, time, location, and sample number. Forward the samples to the General Chemical Laboratory (FM 21-40) for analysis.

a. To collect a soil sample:

(1) Unroll a soil extraction bag (4, fig. 2) and remove the paper clip (C) and spacer (B).

(2) Fold up the bottom of the bag three times and fasten the fold with the paper clip.

(3) Scoop a thin layer (not more than one-half inch) of top soil from a small area into the bag. Do not fill the bag more than one-fourth full.

(4) Fold down the top of the bag three times and seal the bag with the tie straps.

(5) Place the sample in the soil kit.

(6) Discard the scoop after all samples have been collected.

Note. Process the soil sample (para 16) as soon as possible after it has been collected to prevent deterioration of chemical agent in the sample.

b. To collect samples on surfaces:

(1) Remove the seal and cap from an extraction fluid bottle (3, fig. 2), and using a fresh applicator (5), each time, repeat (2) through (5) below four times.

(2) Dip an applicator into the bottle to wet it.

(3) Roll or rub the tip over a small area of the surface.

(4) Place the applicator tip in the extraction fluid bottle; then snap off the upper part of the applicator.

(5) When sampling is completed, recap and reseal the bottle.

Note. If contaminated foliage or twigs are used for sampling, dip them in the extraction fluid several times and then discard them. Handle the foliage or twigs carefully to prevent them from falling into the liquid.

c. To collect water samples:

(1) Use a soil collection bag and scoop to collect a water sample, free of debris if possible.

(2) Scoop approximately 55 milliliters (2 ounces) of suspected water into a soil collection bag.

(3) Fold down the top of the bag three times. Seal the bag with the attached tie straps.

(4) Wrap a tie (7, fig. 2) tightly around the bag approximately one-fourth of the distance from the top of the bag.

(5) Rinse the outside of the bag with uncontaminated water, if available, and place the bag into a second soil collection bag. Seal it in the same manner as the bag containing the sample.

13. Biological Agent Sampling

If the presence of biological agent is suspected, collect as many biological agent samples as may be required. Mark them for identification with date, time, location, and sample number.

a. To collect a water sample:

(1) Remove the seal and cap (red) from an empty sterile vial.

(2) Dip the vial just below the water surface and fill the vial.

(3) Recap and reseal the vial.

(4) Rinse the outside of the vial with uncontaminated water, if available.

(5) Mark a shipping tag to identify the sample and attach it to the vial with a tie.

(6) Place the vial in the soil sampling kit.

b. To collect a sample on surfaces:

(1) Remove the seal and cap (blue) from the vial containing holding solution.

(2) Dip the cotton tip of an applicator into the liquid. Remove the applicator and recap the vial.

(3) Rub and roll the wetted applicator tip over the suspected surface covering an area of approximately .36 square inches.

(4) Open the vial, insert the cotton tip of the applicator, and break off the end that extends from the vial.

(5) Recap and reseal the vial.

(6) Mark a shipping tag to identfy the sample and attach it with a tie (7, fig. 2) to the vial.

(7) Place the vial in the soil sampling kit.

14. Radiological Soil Sampling

To collect a radiological sample from a hot spot (para 11*b*):

a. Using the scoop, transfer a thin layer of soil, 2 or 3 inches square and ¼- to ⅜-inch deep, to a soil collection bag. (Fill the bag approximately half full.)

b. Fold down the top of the bag three times. Seal the bag with the attached tie straps.

c. Mark a shipping tag to identify the sample and attach it with a tie (7, fig. 2) to the bag.

d. Place the sample in the soil kit. Then place the soil kit in a suitable shielded container as soon as possible.

e. Record hourly meter readings until the sample is shipped to the laboratory. Ship the readings along with the sample.

15. Contaminated Objects

a. Use a soil collection bag to collect small contaminated objects, such as fragments or small pieces of aerosol dissemination equipment, spray guns, vials, compressed-air-type bomb or shells, small dead animals or fish.

b. Fold down the top of the bag three times. Seal the bag with the attached tie straps.

c. Mark a shipping tag to identify the sample and attach it with a tie to the bag.

d. Place the sample in the soil sampling kit.

16. Processing Soil Sample

To process a soil sample:

a. Untie and unfold the top of the soil extraction bag.

b. Remove the seal and cap from an extraction fluid bottle.

c. Carefully pour the extraction fluid into the soil extraction bag leaving the solid drying agent in the bottle.

d. Reseal the top of the soil extraction bag.

e. Hold the seals at the top and bottom of the bag in one hand. With the other hand, gently knead the contents of the bag for approximately 3 minutes to extract any chemical agent that may be in the soil sample. Take care not to squeeze out any of the contents.

f. Remove the clip. Unfold the bottom of the bag and insert it in the extraction fluid bottle.

g. Gently squeeze the fluid from the bag into the bottle. Take care not to force any soil into the bottle.

h. Remove the bag from the bottle and reseal the bottom of the bag.

i. Recap the extraction fluid bottle tightly and reseal the bottle with the pressure-sensitive tape. Mark the bottle to identify the soil extract with the soil sample.

j. Place the soil extraction bag in a soil collection bag and seal the bag with the attached tie straps.

k. Place the processed soil sample and the extraction fluid bottle in the soil sampling kit.

l. Forward both the soil extract and the soil sample to the General Chemical Laboratory for test.

APPENDIX

REFERENCE

FM 21-40 ..... Chemical, Biological, and Nuclear Defense

By Order of the Secretary of the Army:

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57-100 (3)
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NG: State AG (3); Div (1).

USAR: None.

For explanation of abbreviations used, see AR 320-50.

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